Amendments to the Claims

1 (currently amended): A variable reluctance resolver wherein angular position is determined by detection of permeance between a rotor pole and a stator pole, the resolver comprising:

a rotor and a stator wherein the rotor includes a noncircular core of non-permanent magnetic material which is rotatably supported inside the stator with a gap therebetween, the shape of the rotor being such that the magnetic gap permeance varies according to a sine function of the rotational angle,

said noncircular core including a central circular portion and a plurality of salient poles protruding on the periphery of the central circular portion,

wherein each salient pole of the rotor has a center which is offset by a prescribed offset distance in the radial direction from the center of the rotor, and the outer peripheral shape of each salient pole comprises an arc of a circle of radius r which is centered on the center of the salient pole and which does not extend to the inner peripheral surface of the stator.

2 (original): A variable reluctance resolver as claimed in claim 1 wherein the shape of the rotor is defined in accordance with the rotational angle, which is expressed by the mechanical angle ϕ or the electrical angle θ corrected by the shaft angle multiplier, and the offset distance A such that the outer radius Rr of the rotor has a value given by the following equation:

$$Rr = A \cos \phi + \sqrt{r^2 - A^2 \sin^2 \phi} = A \cos (\theta/N) + \sqrt{r^2 - A^2 \sin^2 (\theta/N)}$$

wherein r is the radius of each salient pole, A is the offset distance, ϕ is the mechanical angle (ϕ = electrical angle θ/shaft angle multiplier N), θ is the electrical angle, and N is the shaft angle multiplier.

3 (previously presented): A variable reluctance resolver as claimed in claim 1 wherein the shape of the rotor is defined in accordance with the rotational angle, which is expressed by the mechanical angle ϕ or the electrical angle θ corrected by the shaft angle multiplier, such that the gap δ between the stator and the rotor has a value given by the following equation:

$$\delta = R_s - A\cos\phi - \sqrt{r^2 - A^2\sin^2\phi} = R_s - A\cos(\theta/N) - \sqrt{r^2 - A^2\sin^2(\theta/N)}$$

wherein δ is the gap, R_s is the inner radius of the stator, A is the offset distance, ϕ is the mechanical angle (ϕ = electrical angle θ/shaft angle multiplier N), θ is the electrical angle, N is the shaft angle multiplier, and r is the radius of each salient pole.

4 (previously presented): A variable reluctance resolver as claimed in claim 2 wherein the rotor includes as least four abutting salient poles protruding from and evenly spaced around the periphery of the central circular portion.

5 (previously presented): A variable reluctance resolver as claimed in claim 3 wherein the rotor includes as least four abutting salient poles protruding from and evenly spaced around the periphery of the central circular portion.

Amendments to the Specification

Amend the paragraph on page 1, lines 4-10 as follows:

— The present invention relates to a variable reluctance (VR) resolve, and in particular to a VR resolver which has a rotor which is shaped such that the gap permeance between a pole on the rotor and a pole on a stator (referred to hereinafter as stator) varies according to the sine of the rotational angle, which is expressed by the mechanical angle ϕ or the electrical angle θ corrected by a shaft angle multiplier (shaft angle multiplication factor). —

Cancel the amended paragraph submitted in the amendment of November 8, 2004 and substitute the following paragraph on page 12, lines 9-17:

— FIG. 1 show an embodiment of a VR resolver 1 according to the present invention. It shows an example in which the shape of [[the]] a non-permanent magnetic rotor is determined by the above-described Equation 4, and in which the value of the gap δ between the rotor 2 and the stator 4, which determines the shape of the rotor 2, is determined by the above-described Equation 5. FIG. 1 shows the case in which the shaft angle multiplier N = 4, i.e., the case in which the rotor 2 has four abutting salient poles 3 protruding from and evenly spaced around the periphery of a central circular portion. —